back for assistance, and in the interval sketched on a small scale, and, stripped off the skin, which is a good size for a small museum, and, as carriage is a consideration, suits me better than a large one.

"It is perfectly marked after the manner of Quaggas in this locality, but not so fully as those of Dāká and the Zambesi, and is most certainly an intermediate link between already described varieties and the Zebra. The chief points worthy of note are that the legs, instead of being white as in the Bonte Quagga (*E. burchelli*) from the houghs and knees, are marked with transverse bands, not so dark as those on the body, quite down to the hoofs; there is a dark stripe, commencing between the fore legs and extending along the belly to between the hinder, where it becomes broader and somewhat fainter; the first three stripes behind the shoulder are joined to this; the dark stripes on the rump are alternated with others of a medium brown, but those on the fore part of the body and neck are of a full deep black; there are callosities on the inside of the fore legs only, and none on the hinder.

"Chapman killed two Quaggas during the day. I believe they were very faintly marked on the legs; but the vultures and Damaras destroyed them. The skins are quite worthless, which is much to be regretted, as we think it certain they are true Quaggas undescribed in any work we know of, and, as a new variety, would have been a handsome gift to any museum.

"Pereira told me subsequently, the Quagga of Damaraland has legs very nearly white; there are faint stripes, but not visible till you come close to them; there are warts on the fore legs only. The Wilde Paard is darker, the stripes blacker; the head is larger, and the ears also; they stand up so as to be visible above the mane. The Wilde Paard goes in the hills, the Quagga on the flats.

"I sent down the skin of the filly to Mr. Logue in Cape Town, and he forwarded it to the British Museum."

With reference to this communication, Mr. Sclater remarked that the female Zebra in the Society's Gardens (presented to the Menagerie, May 26th, 1861, by H.E. Sir George Grey), which he had hitherto referred to *Equus burchelli*, appeared to answer the description above given in every way, and must probably be referred to *Equus chapmanni* if that species were allowed to stand. Mr. Sclater exhibited a drawing by Mr. Wolf (Plate XXII.) representing this animal.

The following papers were read :—

1. On the Development of the Sternal Callosities in Cyclanosteus senegalensis, and on the Synonyms of Cyclanosteus and its allied Genera. By Dr. J. E. Gray, F.R.S.

The British Museum has recently purchased, at a sale of the natural-history specimens collected by the late Dr. William Balfour Baikie, R.N., during his recent explorations up the Niger, a series of five specimens of the Tortoise, which I figured in the 'Catalogue

J.Wolf. del et lith.

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EQUUS BURCHELLI.

of Shield Reptiles in the British Museum,' under the name of *Cyclanosteus petersii* (t. 29), but which, I have been induced since to believe, may be the more adult state of *Cryptopus senegalensis* (Dum. et Bibr. Erp. Gén. ii. 504), and have hence, in my "Revision of the Species of *Trionychidæ* found in Asia and Africa" (P. Z. S. 1864, p. 76), named *Cyclanosteus senegalensis*.

The specimen which is figured in the 'Catalogue of Shield Reptiles in the British Museum' represents all the callosities in the sternum as developed when the animal is approaching maturity, with the two hinder ones of a small size.

The series which we have now received shows that the animal sometimes reaches nearly the adult size without any indications of the hinder callosities being developed; in another specimen of nearly the same size, the place they occupy is only marked by a small smooth tubercle, showing through the skin. In the specimen figured in the catalogue above referred to, the callosities are of a small size and rounded form. In one of the specimens now received they are of a larger size and more oblong form; in a second rather larger specimen they are much larger, oblong-elongate, occupying nearly the whole length of the bones on which they are placed; and in a third specimen, which has all the sternal callosities very much developed, and some additional ones on the side of the front ones, the hinder pair of callosities are of a very large size, covering the greater part of the hinder portion of the sternum between the hinder moveable lobes; the callosities are of an elongated subtrigonal shape, with nearly straight sides and a rounded hinder end; they have a double notch on the front edge, fitting into two similar notches in the outer hinder edge of the abdominal callosities.

The five gular callosities are very similar in disposition; but they vary greatly in form and size, compared with each other, in the different specimens of this series.

In one which is destitute of the hinder callosities, the second pair of gular callosities are long and narrow, forming with the hinder gular callosity a nearly circular disk (see fig. 2, p. 424); while in all the other specimens the second pair of callosities are broad and separated from the edge of the third callosity by the rounded form of the outer hinder angle; the single hinder callosity is generally wider than the others; the first pair in two specimens are square, nearly as broad as long; but in the four other specimens they are much broader than long, from front to back, forming together a broad band with an arched outline in front of the second pair (see fig. 1, p. 424).

In the specimen without any hinder callosities there is a single, small, roundish, additional tubercle on the right side of the hinder outer angle of the second pair of gular plates; but there is none to match it on the other side of the sternum. In all the other specimens there is no indication of such additional plates, except in the one which has all the callosities so much developed. This specimen has several distinct well-marked callosities, besides the usual number: thus there is a small triangular one at the outer hinder edge of the right plate of the first pair; there is a roundish smooth bony plate

on the middle of the outer side of the left; a rugose callosity, of a triangular shape, on the outer side of the right callosity of the second pair; the space between the outer hinder angle of the second pair of gular callosities, the side of the odd third plate, and the front edge of the middle of the abdominal callosity is filled up with an additional callosity; on the left side this callosity is single and of a square form; on the right side it is divided into two parts, the anterior part being triangular, and the hinder rather irregular in its outline (see fig. 1).

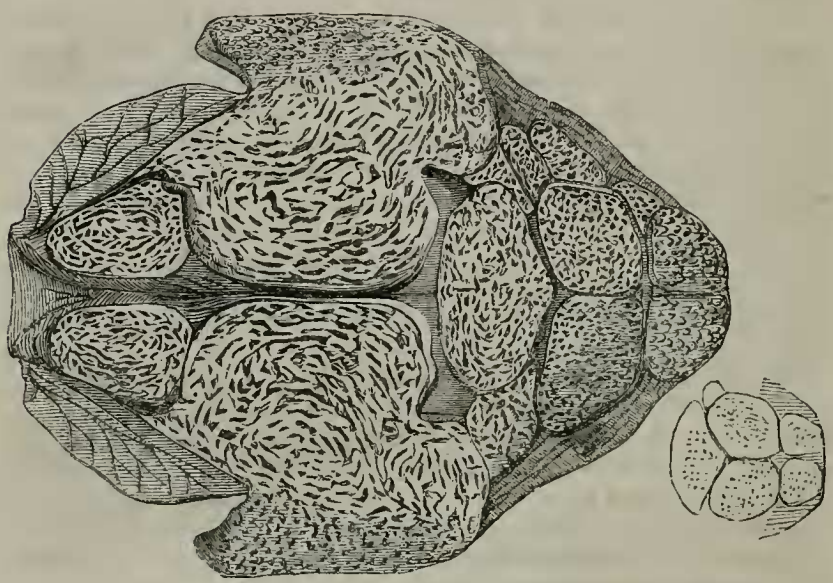

Fig. 1. Fig. 2.

The middle lateral abdominal callosity of this specimen is large; but these callosities differ greatly in size and form in the different specimens. This specimen seems to show the callosities in the maximum state of development; and if I had not possessed a series of specimens apparently coming from the same locality, showing how mutable the form and size of the callosities are in this species, I should have been induced to believe it exhibited the characters of a distinct and well-marked species.

As in all other *Trionychidæ*, the young specimen of this species is destitute of any callosities; but, from the foregoing observations, the gular and abdominal callosities appear to be developed nearly at the same time; and the hinder pair do not make their appearance till later in the life of the animal, and seem to be gradually developed, being at first small and roundish, until they cover the whole length of the bone on which they are placed; hence they vary considerably in shape and size in the different individuals of the species.

The Tortoises under examination may be referred to three principal varieties:—

a. *equilifera*.—The sternal callosities moderately far apart; front gular square; second pair and hinder ones forming a circular disk; abdominal moderate; posterior absent.

b. *normalis*.—The sternal callosities moderate, far apart; the gular broad, transverse; the abdominal well developed; the posterior pair, at first small, at length becoming oblong-elongated, covering the bone.

c. *callosa*.—The sternal callosities very large, and almost entirely covering the sternum, with some additional, irregular, non-symmetrical callosities on the sides of the gular ones; the posterior callosities very large, elongate-trigonal.

Dr. Peters is of opinion that in my former paper on *Trionychidæ* (P. Z. S. 1864, p. 76) I ought to have used the generic name of *Cycloderma* instead of Mr. Cope's term *Heptathyra*. To this I reply that I always wish to give every zoologist, whatever may be his country, his due, and to use the generic name which, after examination and comparison, appears to have priority; and I am always ready to give up my own name for a genus when any other has claims to priority over it. Indeed, in this as in other affairs of life, the best rule is to do unto others as you would they should do unto you. If I fail in this, it is from error of judgment, and not from design.

In this special instance I do not think there is any ground for complaint; and no objection could have been made, if I had not committed an injustice to myself in my anxiety to do what I believed was a kindness to Dr. Peters.

In 1850, having received a *Trionyx* from the Gambia, I formed it into a genus, which I characterized. But recollecting, before I sent the MS. to press, that Dr. Peters, in one of his letters to me, had stated that he had a *Trionyx* from Africa, which he shortly described, and on which, he said, he had formed a genus in his MS. under the name of *Cyclanorbis*, when I read my account of this Tortoise before the Zoological Society, in November 1852 (see P. Z. S. 1852, p. 135), I erased my own name and well-defined characters and adopted the name of Dr. Peters, giving an extract from his letter as the character of the genus, and called the Tortoise *Cyclanorbis petersii* in honour of Dr. W. Peters.

Dr. Peters subsequently informed me that he had changed the name of the genus *Cyclanorbis* to *Cyclanosteus*; so in the 'Catalogue of Shield Reptiles in the British Museum,' which was published in 1855, but which was printed many months before it appeared, as it had to wait to have the plates finished, I adopted his new name, taking my generic characters from the Gambian specimen, which I had named *petersii*, and, referring to Dr. Peters's MS. notes on his species from Mozambique, which I had not seen, quoted it as a second species; so that *petersii* is doubtless the type of the genus *Cyclanosteus* as published in that catalogue.

Some time after the publication of this work I discovered that Dr. Peters had very briefly characterized the genus under the name

of *Cycloderma*, for he had changed the name again before he published it in the 'Monatsbericht' for 1854, p. 216. This work, I believe, was not in this country when my catalogue was published; and the paper certainly was not read when my account of the genus was printed. Dr. Peters's type is *C. frenatum* from the Zambesi.

It is to be observed that when I quoted Dr. Peters's MS. in 1852, and when he published his characters of the genus under the third name in 1854, he simply characterized it as a genus of *Trionychidæ* with flaps over the feet, and without any bones in the margin of the disk.

When I characterized the genus *Cyclanosteus* in the 'Catalogue of the Shield Reptiles in the British Museum,' I restricted the genus to those animals that have nine sternal callosities, as well as a flexible boneless margin to the shield.

In 1856, M. Auguste Duméril, in the 'Revue Zoologique' for that year, described a *Trionyx* that would agree with Dr. Peters's character of *Cycloderma*, under the name of *Cryptopus aubryi*.

In 1859 I received a Tortoise from the Zambesi, which was sent by Dr. Livingstone, with only seven callosities on the sternum. Not recognizing it as the one so shortly and imperfectly described by Dr. Peters (who does not mention the number of the callosities either in his generic or specific characters), and seeing that it was decidedly different from my genus *Cyclanosteus*, I described it before the Zoological Society, in January 1860, as a new genus, under the name of *Aspidochelys livingstonii* (see P. Z. S. 1860, p. 6). I have now no doubt that this is the *Cycloderma frenatum* of Dr. Peters, as they both inhabit the Zambesi, and as Dr. Sclater, who has examined the Berlin specimen, informs me they are undoubtedly alike.

It may be distinct from *C. aubryi* from the Gaboon; but these Tortoises evidently have an extended distribution in Africa.

In 1859, in the 'Proceedings of the Academy of Natural Sciences of Philadelphia,' Mr. Cope redescribed *C. aubryi*, and founded on it a genus under the name of *Heptathyra*. This genus is evidently synonymous with my genus *Aspidochelys*, which appeared nearly simultaneously.

In my paper "On the *Trionychidæ* of Asia and Africa" in the 'Proceedings of the Society' for 1864, finding that the *Trionyx* with nine and the one with seven tubercular callosities had very different skulls, and that it was requisite not only to separate them into genera but into distinct tribes, and that in my catalogue I had distinctly characterized the one with nine under the name of *Cyclanosteus*, and that Mr. Cope had characterized the one with seven, very shortly before I had named it *Aspidochelys*, under the name of *Heptathyra*, while Dr. Peters's genus *Cycloderma* applied equally well to both of them, I used the two former genera, observing that "the genus *Cycloderma* of Peters was constituted to contain the *Cryptopus* of Duméril, which had a boneless flexible margin to the shield, without paying any attention to the number of the callosities, which are also coexistent with a very different-shaped skull, and doubtless different habits in the animal." I therefore adopted the genera *Cyclanosteus*